Amendments to the Claims:

Please cancel Claims 12 and 13 with prejudice. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~A ranging sensor apparatus~~ An intrusion detection system for detecting a disturbance at a determinable portion ~~along a length of optical fiber~~ of a structure, ~~said apparatus~~ comprising:

(a) a transmitter leg for launching a wavelength invariant ~~a~~ pulsed polarized optical signal;

(b) a sensor leg for ~~carrying a portion of~~ arrangement along the structure, the sensor leg comprising a sensing optical fiber to carry a portion of said polarized optical signal ~~within said optical fiber~~ sensitive to a disturbance therealong; and

(c) a receiver leg for ~~aeceptting~~ receiving a portion of a backscattered optical signal from said sensor leg;

wherein said backscattered optical signal provides polarization change and timing information relative to said pulsed polarized optical signal, sufficient to determine a location of [[a]] the disturbance along said ~~optical fiber,~~ sensor leg; and

wherein the location of the disturbance along the sensor leg can be mapped to the determinable portion of the structure.

2. (Currently Amended) The ~~apparatus~~ system as claimed in Claim 1, wherein

said transmitter leg includes a polarized pulsed optical source[[,]];

~~said sensor leg includes a length of sensing optical fiber responsive to said disturbance,~~

said receiver leg includes a polarizer and a receiver for processing a signal received from said sensing optical fiber[[,]]; and

said transmitter leg, receiver leg, and said sensor leg are coupled together via a directional coupler.

3. (Currently Amended) The ~~apparatus~~ system as claimed in Claim 1, wherein

said transmitter leg includes a transmitter, an isolator, a polarization controller, and a polarizer[[,]];

said sensor leg includes ~~an~~ at least one optical amplifier, and a polarization mode dispersion compensator[[,]]; ~~and a length of sensing optical fiber responsive to said disturbance~~

said receiver leg includes a polarization splitter and a plurality of receivers for processing a signal received from said sensing optical fiber[[,]]; and

said transmitter leg, receiver leg, and said sensor leg are coupled together via a circulator.

4. (Currently Amended) The ~~apparatus~~ system as claimed in Claim 3, wherein the sensor leg comprises ~~more than one~~ at least two optical amplifiers and ~~more than one~~ at least two polarization mode dispersion compensators.

5. (Currently Amended) The ~~apparatus~~ system as claimed in ~~any one of Claims 1, 2, 3, or 4,~~ Claim 1, wherein said ~~apparatus~~ intrusion detection system is ~~capable of coupling~~ operatively coupled to an optical telecommunications cable ~~in order to detect~~ for detecting tampering with said optical telecommunications cable.

6. (Currently Amended) The ~~apparatus~~ system as claimed in Claim 1, wherein said ~~apparatus~~ intrusion detection system is ~~capable of coupling~~ operatively coupled to a non-ranging perimeter security sensing cable ~~in order to detect~~ for detecting disturbances along ~~said non-ranging senor cable~~ its length.

7. (Currently Amended) The ~~apparatus~~ system as claimed in Claim 6, wherein said non-ranging perimeter security sensing cable is optically based.

8. (Currently Amended) The ~~apparatus~~ system as claimed in Claim 6, wherein said non-ranging perimeter security sensing cable is electrically based.

9. (Currently Amended) The ~~apparatus~~ system as claimed in Claim 1 ~~further including~~, wherein said intrusion detection system further comprises an optical switch ~~located between said sensor leg and both said transmitter leg and said receiver leg such that multiple optical fibers are capable of being sensed~~ operatively coupled to the transmitter leg, the sensor leg, and the receiver leg for sensing disturbances along a plurality of sensor legs.

10. (Previously Amended) A method of detecting a disturbance at a determinable portion along a length of optical fiber using backscattered optical signals that provide polarization change and time information sufficient to determine a location of said disturbance, said method comprising:

launching a pulsed polarized optical signal for carrying within an optical fiber;

capturing a predetermined number of reflected polarized signal traces from said optical fiber;

digitally filtering said predetermined number of reflected polarized signal traces to form a plurality of digitally filtered traces;

averaging said digitally filtered traces to form an average trace;

obtaining a disturbance trace from said optical fiber; and

comparing said disturbance trace to said average trace so as to determine a disturbance at a portion of said optical fiber.

11. (Currently Amended) The method as claimed in Claim 10, wherein said obtaining step includes filtering and averaging one or more disturbance traces.

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) The ~~ranging sensor apparatus of~~ system as claimed in Claim 1, wherein said sensor leg is a hybrid cable comprising:

~~said optical fiber for carrying backscattered optical signal providing polarization change and timing information relative to a pulsed polarized optical signal sufficient to determine a location of a disturbance along said optical fiber~~ said sensing optical fiber; and

a non-locating sensor cable for generating an electrical signal capable of being processed into an audio output indicative of a disturbance along said non-locating sensor cable;

wherein said sensing optical fiber and non-locating sensor cable are physically integrated within a single jacket.

15. (Previously cancelled)

16. (Previously cancelled)

17. (Currently Amended) The ~~ranging sensor of~~ system as claimed in Claim 1, wherein said sensor leg is a hybrid cable comprising:

~~said optical fiber for carrying backscattered optical signal providing polarization change and timing information relative to a pulsed polarized optical signal sufficient to determine a location of a disturbance along said optical fiber~~ said sensing optical fiber; and

a non-locating sensor cable for modifying a signal cable of being processed into an audio output indicative of a disturbance along said non-locating sensor cable;

wherein said sensing optical fiber and non-locating sensor cable are physically integrated within a single jacket.

18. (Currently Amended) The ~~hybrid cable~~ system as claimed in Claim 17, wherein said non-locating sensor cable is an optical cable for modification of the signal.

19. (Currently Amended) The ~~hybrid cable~~ system as claimed in Claim 17, wherein said non-locating sensor cable is electrically based for modification of the signal.

20. (New) The system as claimed in Claim 1, wherein said structure is selected from at least one member of the group consisting of a fence, a pipeline, a building, a wall, and a wall-top.

21. (New) An intrusion detection system for detecting an intrusion along a determinable portion of a structure comprising:

(a) a transmitter leg for launching a wavelength invariant pulsed polarized optical signal;

(b) a sensor leg for arrangement along the structure, the sensor leg comprising a sensor cable including a locating optical fiber to carry a portion of said pulsed polarized optical signal sensitive to a disturbance therealong and a non-locating sensor cable;

(c) a receiver leg for accepting a portion of a backscattered optical signal from said sensor leg; and

(d) a signal processor for providing a signal response output indicative of a disturbance along said non-locating sensor cable;

wherein said backscattered optical signal provides polarization change and timing information relative to said pulsed polarized optical signal sufficient to determine a location of the disturbance along the locating optical fiber; and

wherein the location of the disturbance along the sensor leg can be mapped to the determinable portion of the structure.

22. (New) The system as claimed in Claim 21 wherein signal response output and said polarization change and timing information are processed together to provide enhanced detection, location, and classification of the disturbances.

23. (New) The system as claimed in Claim 21, wherein said optical fiber and said non-locating sensor cable are physically integrated within a single jacketing.

24. (New) The system as claimed in claim 21, wherein said non-locating sensor cable generates an electrical signal which is capable of being processed into an audio output indicative of a disturbance along said non-locating sensor cable.

25. (New) The system as claimed in claim 21, wherein said non-locating sensor cable modifies a signal which is capable of being processed into an audio output indicative of a disturbance along said non-locating sensor cable.

26. (New) The system as claimed in Claim 25, wherein said non-locating sensor cable is an optical fiber for modification of the signal.

27. (New) The system as claimed in Claim 25, wherein said non-locating sensor cable is electrically based for modification of the signal.